

EXHIBIT 1

AMENDED APPENDIX K - Command Keyword Analysis

COLOR KEY	DESCRIPTION
Legacy Command Term	Command words used in pre-Cisco IOS systems, like UNIX or TOPS-20 or VAX/VMS
Industry Standard Term	A term or acronym used or defined in an IETF, IEEE, or similar document at the time the command was purportedly added to Cisco IOS; may also refer to MIB variables
Common Industry Term	A common industry term or acronym familiar to the expected user of the command at the time it was added to Cisco IOS; it may also describe standardized functionality

To the extent that a command keyword is not colored, it is not protected by copyright under at least the short words and phrases doctrine. Moreover, many of the non-colored keywords have nevertheless been adopted and used by the networking industry as part of the industry standard CLI. The adoption of the commands below is set forth in other charts attached to my Report. Numbers have been added to correspond with the numbering used in Exhibit Copying-2 to the Almeroth Opening Report.

#	Disputed Cisco Command Words					Additional Opinions
1	aaa	accounting				
2	aaa	accounting	dot1x			
3	aaa	authentication	login			
4	aaa	authorization	config-commands			
5	aaa	authorization	console			
6	aaa	group	server	radius		
7	aaa	group	server	tacacs+		
8	address-family					
9	aggregate-address					
10	area	default-cost				
11	area	default-cost				
12	area	nssa				
13	area	nssa				
14	area	nssa	default-information-originate			
15	area	nssa	default-information-originate			
16	area	nssa	no-summary			
17	area	nssa	translate	type7	always	
18	area	nssa	translate	type7	always	
19	area	range				
20	area	range				
21	area	stub				
22	area	stub				
23	arp	timeout				
24	banner	login				
25	banner	motd				
26	bfd	all-interfaces				
27	bgp	client-to-client	reflection			
28	bgp	cluster-id				
29	bgp	confederation	identifier			
30	bgp	confederation	peers			
31	bgp	listen	limit			
32	bgp	log-neighbor-changes				
33	bgp	redistribute-internal				
34	boot	system				
35	channel-group					
36	class-map	type	control-plane			
37	clear	arp-cache				

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38	clear	counters			
39	clear	ip	arp		
40	clear	ip	bgp		
41	clear	ip	igmp	group	
42	clear	ip	mroute		
43	clear	ip	msdp	sa-cache	
44	clear	ip	nat	translation	
45	clear	ip	ospf	neighbor	
46	clear	ipv6	neighbors		
47	clear	ipv6	ospf	force-spf	
48	clear	lldp	counters		"counters" is a common industry term
49	clear	lldp	table		
50	clear	mac	address-table	dynamic	"static" and "dynamic" are common industry terms
51	clear	spanning-tree	counters		
52	clock	set			
53	clock	timezone			
54	control-plane				
55	default-information	originate			
56	default-information	originate			
57					
58	default-metric				
59	distance	bgp			
60	domain-id				
61	dot1x	max-reauth-req			
62	dot1x	pae	authenticator		
63	dot1x	port-control			
64	dot1x	reauthentication			
65	dot1x	system-auth-control			
66	dot1x	timeout	quiet-period		The term "timeout" is a common industry term that has particular meanings, depending on the context of how it is used
67	dot1x	timeout	reauth-period		
68	dot1x	timeout	tx-period		
69	enable	secret			
70	erase	startup-config			
71	errdisable	detect	cause	link-flap	
72	errdisable	recovery	cause		
73	errdisable	recovery	interval		
74	flowcontrol	receive			"receiving" and "sending" are common industry terms generally used to describe the direction data may be flowing
75	flowcontrol	send			
76	interface	ethernet			"interface" is a well-known networking industry term
77	interface	loopback			"loopback" is a well-known networking industry term, and is also used more broadly in the telecommunications industry
78	interface	port-channel			
79	interface	vlan			
80	ip	access-group			
81	ip	access-list			
82	ip	access-list	standard		
83	ip	address			
84	ip	as-path	access-list		
85	ip	community-list	expanded		
86	ip	community-list	standard		
87	ip	dhcp	smart-relay		
88	ip	dhcp	smart-relay	global	
89	ip	dhcp	snooping		"snooping" is a term found in industry standard documents, but it is also a well-known networking term.

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90	ip	dhcp	snooping	information	option	
91	ip	dhcp	snooping	vlan		
92	ip	domain	lookup			
93	ip	domain-name				
94	ip	ext-community-list	expanded			
95	ip	ext-community-list	standard			
96	ip	helper-address				
97	ip	host				
98	ip	http	client	source-interface		
99	ip	icmp	redirect			
100	ip	igmp	last-member-query-count			
101	ip	igmp	last-member-query-interval			
102	ip	igmp	query-interval			
103	ip	igmp	query-max-response-time			
104	ip	igmp	snooping			
105	ip	igmp	snooping	querier		
106	ip	igmp	snooping	vlan		
107	ip	igmp	snooping	vlan	immediate-leave	
108	ip	igmp	snooping	vlan	mrouter	"mrouter" is shorthand for multicast router
109	ip	igmp	snooping	vlan	static	"static" and "dynamic" are common industry terms
110	ip	igmp	startup-query-count			
111	ip	igmp	startup-query-interval			
112	ip	igmp	static-group			
113	ip	igmp	version			"version" in the context of routing protocols is understood to refer to the particular version of the protocol being run
114	ip	load-sharing				
115	ip	local-proxy-arp				
116	ip	msdp	cache-sa-state			
117	ip	msdp	default-peer			
118	ip	msdp	description			
119	ip	msdp	group-limit			
120	ip	msdp	keepalive			
121	ip	msdp	mesh-group			
122	ip	msdp	originator-id			
123	ip	msdp	peer			
124	ip	msdp	sa-filter	in		"sa" stands for "Source-Active" messages per the Multicast Source Discovery Protocol
125	ip	msdp	sa-filter	out		
126	ip	msdp	sa-limit			
127	ip	msdp	shutdown			
128	ip	msdp	timer			
129	ip	multicast	boundary			
130	ip	multicast-routing				
131	ip	name-server				
132	ip	nat	pool			
133	ip	nat	translation	tcp-timeout		
134	ip	nat	translation	udp-timeout		
135	ip	ospf	authentication			
136	ip	ospf	authentication-key			
137	ip	ospf	bfd			
138	ip	ospf	cost			
139	ip	ospf	dead-interval			
140	ip	ospf	hello-interval			
141	ip	ospf	message-digest-key			

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142	ip	ospf	name-lookup		
143	ip	ospf	network		
144	ip	ospf	priority		
145	ip	ospf	retransmit-interval		
146	ip	ospf	shutdown		
147	ip	ospf	transmit-delay		
148	ip	pim	anycast-rp		
149	ip	pim	bfd		
150	ip	pim	bfd-instance		
151	ip	pim	bsr-border		
152	ip	pim	bsr-candidate		
153	ip	pim	dr-priority		
154	ip	pim	log-neighbor-changes		
155	ip	pim	neighbor-filter		
156	ip	pim	query-interval		
157	ip	pim	register-source		
158	ip	pim	rp-address		
159	ip	pim	rp-candidate		
160	ip	pim	sparse-mode		
161	ip	pim	spt-threshold		
162	ip	pim	spt-threshold	group-list	
163	ip	pim	ssm	range	
164	ip	prefix-list			
165	ip	protocol			
166	ip	proxy-arp			
167	ip	radius	source-interface		
168	ip	rip	v2-broadcast		
169	ip	route			
170	ip	routing			
171	ip	tacas	source-interface		
172	ipv6	access-group			
173	ipv6	access-list			
174	ipv6	address			
175	ipv6	dhcp	relay	destination	
176	ipv6	enable			
177	ipv6	host			
178	ipv6	nd	managed-config-flag		
179	ipv6	nd	ns-interval		"ns" stands for "neighbor solicitation" per the neighbor discovery protocol
180	ipv6	nd	other-config-flag		
181	ipv6	nd	prefix		
182	ipv6	nd	ra	interval	"ra" stands for "router advertisement" per the neighbor discovery protocol
183	ipv6	nd	ra	lifetime	
184	ipv6	nd	ra	suppress	
185	ipv6	nd	reachable-time		
186	ipv6	nd	router-preference		
187	ipv6	neighbor			
188	ipv6	ospf	area		
189	ipv6	ospf	cost		
190	ipv6	ospf	dead-interval		
191	ipv6	ospf	hello-interval		
192	ipv6	ospf	network		
193	ipv6	ospf	priority		
194	ipv6	ospf	retransmit-interval		
195	ipv6	ospf	transmit-delay		
196	ipv6	prefix-list			

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197	ipv6	route		
198	ipv6	router	ospf	
199	ipv6	unicast-routing		
200	isis	hello-interval		"hello" messages are well known in the networking industry
201	isis	hello-multiplier		
202	isis	lsp-interval		
203	isis	metric		
204	isis	passive		
205	isis	passive-interface		
206	isis	priority		
207	is-type			
208	lacp	port-priority		
209	lacp	rate		
210	lacp	system-priority		
211	link	state	group	"link state" is a commonly used networking term, typically used in the context of link state routing protocols.
212	link	state	track	"track" is a commonly used networking term, as discussed in Appendix A.
213	lldp	holdtime		
214	lldp	receive		
215	lldp	reinit		
216	lldp	run		
217	lldp	timer		
218	lldp	tlv-select		
219	lldp	transmit		
220	load	interval		
221	log-adjacency-changes			
222	log-adjacency-changes			
223	log-adjacency-changes			
224	logging	host		
225	mac	access-group		
226	mac	access-list		
227	mac	address-table	aging-time	
228	mac	address-table	static	
229	mac-address			
230	maximum-paths			
231	maximum-paths			
232	neighbor	activate		
233	neighbor	allowas-in		
234	neighbor	default-originate		
235	neighbor	description		
236	neighbor	ebgp-multihop		
237	neighbor	fall-over	bfd	
238	neighbor	local-as		
239	neighbor	next-hop-self		
240	neighbor	password		
241	neighbor	peer-group		
242	neighbor	peer-group		
243	neighbor	remote-as		
244	neighbor	remote-private-as		
245	neighbor	route-map		
246	neighbor	route-reflector-client		
247	neighbor	send-community		
248	neighbor	shutdown		
249	neighbor	soft-reconfiguration		
250	neighbor	timers		

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251	neighbor	transport	connection-mode	
252	neighbor	update-source		
253	neighbor	weight		
254	network	area		
255	no	snmp-server		
256	ntp	authenticate		
257	ntp	authentication-key		
258	ntp	server		
259	ntp	source		
260	ntp	trusted-key		
261	passive-interface	default		
262	passive-interface	<interface>		
263	passive-interface			
264	policy-map	type	control-plane	
265	policy-map	type	qos	
266	port-channel	load-balance		
267	port-channel	min-links		
268	priority-flow-control	mode		
269	private-vlan			
270	private-vlan	mapping		
271	ptp	domain		
272	ptp	priority1		* In Prof. Almeroth's opening report, Cisco's asserted command abstraction was changed from "ptp priority1" to just "priority1"
273	ptp	priority2		* In Prof. Almeroth's opening report, Cisco's asserted command abstraction was changed from "ptp priority2" to just "priority2"
274	ptp	sync	interval	
275	radius-server	deadtime		
276	radius-server	host		
277	radius-server	key		
278	radius-server	retransmit		
279	radius-server	timeout		
280	redundancy	force-switchover		
281	route-map			
282	router	bgp		
283	router	isis		
284	router	ospf		
285	router	rip		
286	router-id			
287	router-id			
288	routing-context	vrf		
289	service	sequence-numbers		
290	set-overload-bit			
291	show	aaa	method-lists	
292	show	aaa	sessions	
293	show	arp		
294	show	bfd	neighbors	
295	show	clock		
296	show	dot1q-tunnel		
297	show	dot1x		
298	show	dot1x	all	summary
299	show	dot1x	statistics	
300	show	environment	all	
301	show	environment	cooling	
302	show	environment	power	
303	show	environment	temperature	

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304	show	etherchannel			
305	show	flowcontrol			
306	show	hostname			
307	show	hosts			
308	show	interfaces			
309	show	interfaces	capabilities		
310	show	interfaces	description		
311	show	interfaces	private-vlan	mapping	
312	show	interfaces	status		
313	show	interfaces	switchport		
314	show	interfaces	switchport	backup	
315	show	interfaces	transceiver		
316	show	interfaces	trunk		
317	show	inventory			
318	show	ip	access-lists		
319	show	ip	arp		
320	show	ip	bgp		
321	show	ip	bgp	community	
322	show	ip	bgp	neighbors	
323	show	ip	bgp	neighbors	
324	show	ip	bgp	paths	
325	show	ip	bgp	peer-group	
326	show	ip	bgp	regex	
327	show	ip	bgp	summary	
328	show	ip	community-list		
329	show	ip	dhcp	snooping	
330	show	ip	extcommunity-list		
331	show	ip	helper-address		
332	show	ip	igmp	groups	
333	show	ip	igmp	interface	
334	show	ip	igmp	snooping	
335	show	ip	igmp	snooping	groups
336	show	ip	igmp	snooping	mrouter
337	show	ip	igmp	snooping	querier
338	show	ip	interface		
339	show	ip	interface	brief	
340	show	ip	mfib		
341	show	ip	mroute		
342	show	ip	mroute	count	
343	show	ip	msdp	mesh-group	
344	show	ip	msdp	peer	
345	show	ip	msdp	rpf-peer	
346	show	ip	msdp	sa-cache	
347	show	ip	msdp	summary	
348	show	ip	nat	translations	
349	show	ip	ospf		
350	show	ip	ospf	border-routers	
351	show	ip	ospf	database	database-summary
352	show	ip	ospf	interface	
353	show	ip	ospf	neighbor	
354	show	ip	ospf	request-list	
355	show	ip	ospf	retransmission-list	
356	show	ip	pim	interface	
357	show	ip	pim	neighbor	
358	show	ip	pim	rp	

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359	show	ip	pim	rp-hash		
360	show	ip	prefix-list			
361	show	ip	rip	database		
362	show	ip	rip	neighbors		
363	show	ip	route			
364	show	ip	route	summary		
365	show	ip	route	tag		
366	show	ipv6	access-lists			
367	show	ipv6	bgp			
368	show	ipv6	bgp	community		
369	show	ipv6	bgp	neighbors		
370	show	ipv6	bgp	summary		
371	show	ipv6	interface			
372	show	ipv6	neighbors			
373	show	ipv6	ospf			
374	show	ipv6	ospf	border-routers		
375	show	ipv6	ospf	interface		
376	show	ipv6	ospf	neighbor		
377	show	ipv6	prefix-list			
378	show	ipv6	route			
379	show	ipv6	route	summary		
380	show	ipv6	route	tag		
381	show	isis	database			
382	show	isis	interface			
383	show	isis	topology			
384	show	lACP	counters			
385	show	lACP	interface			
386	show	lACP	neighbor			
387	show	link	state	group		"link" is a commonly used networking term.
388	show	lldp				
389	show	lldp	neighbors			
390	show	lldp	traffic			
391	show	mac	access-lists			
392	show	mac	address-table			
393	show	mac	address-table	aging	time	
394	show	mac	address-table	count		
395	show	module				
396	show	monitor	session			
397	show	ntp	associations			
398	show	ntp	status			
399	show	policy-map	type	control-plane		
400	show	policy-map	interface	type	qos	
401	show	policy-map	interface	control-plane		
402	show	port-channel	summary			
403	show	port-channel	traffic			
404	show	port-security				
405	show	port-security	address			
406	show	port-security	interface			
407	show	privilege				
408	show	ptp	clock			
409	show	ptp	parent			
410	show	ptp	time-property			
411	show	radius				
412	show	redundancy	states			
413	show	reload				

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414	show	role		
415	show	route-map		
416	show	snmp		
417	show	snmp	chassis	
418	show	snmp	community	
419	show	snmp	contact	
420	show	snmp	engineID	
421	show	snmp	group	
422	show	snmp	host	
423	show	snmp	location	
424	show	snmp	mib	
425	show	snmp	source-interface	
426	show	snmp	trap	
427	show	snmp	user	
428	show	snmp	view	
429	show	spanning-tree		
430	show	spanning-tree	blockedports	
431	show	spanning-tree	bridge	
432	show	spanning-tree	interface	
433	show	spanning-tree	mst	
434	show	spanning-tree	mst	configuration
435	show	spanning-tree	mst	interface
436	show	spanning-tree	root	
437	show	storm-control		
438	show	tacas		
439	show	track		
440	show	user-account		
441	show	users		
442	show	version		
443	show	vlan		
444	show	vlan	private-vlan	
445	show	vlan	summary	
446	show	vrf		
447	show	vrrp		
448	snmp	trap	link-status	
449	snmp-server	chassis-id		
450	snmp-server	community		
451	snmp-server	contact		
452	snmp-server	enable	traps	
453	snmp-server	engineID	local	
454	snmp-server	engineID	remote	
455	snmp-server	group		
456	snmp-server	host		
457	snmp-server	location		
458	snmp-server	source-interface		
459	snmp-server	user		
460	snmp-server	view		
461	spanning-tree	bpdufilter		As discussed in Appendix B, "bpdu" is an industry defined term related to the spanning-tree protocol.
462	spanning-tree	bpduguard		
463	spanning-tree	bridge	assurance	
464	spanning-tree	cost		
465	spanning-tree	guard		
466	spanning-tree	link-type		
467	spanning-tree	loopguard	default	

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468	spanning-tree	mode			
469	spanning-tree	mst	configuration		
470	spanning-tree	portfast	bpdufilter	default	
471	spanning-tree	portfast	bpduguard	default	
472	spanning-tree	port-priority			
473	spanning-tree	transmit	hold-count		
474	spanning-tree	vlan			
475	spf-interval				
476	statistics	per-entry			
477	storm-control				
478	switchport	access	vlan		A switch port is the location on the switch where devices connect to the switch. They are used on switches--not routers.
479	switchport	backup	interface		
480	switchport	mode			
481	switchport	port-security			
482	switchport	port-security	maximum		
483	switchport	private-vlan	mapping		"private vlan" is a well-known industry term, as described in Appendix B
484	switchport	trunk	allowed	vlan	
485	switchport	trunk	native	vlan	
486	switchport	vlan	mapping		"mapping" in the vlan context is a well-known industry term
487	tacacs-server	host			
488	tacacs-server	key			
489	tacacs-server	timeout			
490	terminal	length			
491	terminal	monitor			
492	timers	basic			
493	timers	bgp			
494	timers	lsa	arrival		The link-state advertisement (LSA) is a basic communication means of the OSPF routing protocol for the Internet Protocol (IP).
495	timers	throttle	lsa	all	
496	timers	throttle	spf		
497	username	sshkey			
498	vlan	internal	allocation	policy	
499	vrf	definition			Virtual routing and forwarding (VRF) is a technology included in IP (Internet Protocol) network routers that allows multiple instances of a routing table to exist in a router and work simultaneously. IETF Internet Draft for RFC 3281 uses term "VRF" in this context.
500	vrf	forwarding			Virtual routing and forwarding (VRF) is a technology included in IP (Internet Protocol) network routers that allows multiple instances of a routing table to exist in a router and work simultaneously. IETF Internet Draft for RFC 3281 uses term "VRF" in this context.
501	vrrp	authentication			
502	vrrp	delay	reload		
503	vrrp	description			
504	vrrp	ip			
505	vrrp	ip	secondary		
506	vrrp	preempt			
507	vrrp	priority			
508	vrrp	shutdown			"shutdown" is a widely used command word, as discussed in Appendix A
509	vrrp	timers	advertise		"advertise" is a well-known industry term, and is used in the context of, for example, link state advertisements